



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,246	09/08/2003	Tadashi Nomura	36856.1117	3071
54066 7590 08/17/2005 MURATA MANUFACTURING COMPANY, LTD. c/o KEATING & BENNETT, LLP 10400 EATON PLACE SUITE 312 FAIRFAX, VA 22030			EXAMINER TAKAOKA, DEAN O	
			ART UNIT 2817	PAPER NUMBER

DATE MAILED: 08/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/656,246		NOMURA ET AL.	
	Examiner		Art Unit	
	Dean O. Takaoka		2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-30 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-21 and 27-30 is/are allowed.
- 6) ☒ Claim(s) 1,8,9 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 2-7 and 10-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's amendment dated August 2, 2005 has been entered. The finality of the rejection of the last Office action is withdrawn and a newly issued final Office action is submitted below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 8, 9, 22, 23, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaitila et al. (U.S. Patent No. 6,788,170).

Claim 1:

Kaitila et al. (Fig. 8b) shows a piezoelectric resonator comprising a substrate (200) having one of an opening and a concavity (210); a vibrating section (802; where 802 defines the center area – col. 7, lines 54,55; the center area further defined as the

Art Unit: 2817

electrically excitable area – col. 5, lines 9-11) in which at least one pair of an upper electrode (120) and a lower electrode (110) oppose each other so as to sandwich an upper surface and a lower surface of a thin-film section having at least one layer of a piezoelectric thin film (100 and col. 1, line 65), the vibrating section being disposed over the one of the opening and the concavity; and a heat dissipating film (803, analogous to 801 where damping layer 801 is a film – col. 7, lines 26-31 and 54-59; damps Q where a small Q refers to large energy losses caused by vibrational losses due to heat – col. 6, lines 49-54, thus the damping layer being a heat dissipating film) located over at least one of the upper electrode and the thin-film section so as not to cover the vibrating section (802); where the heat dissipating film is arranged so as to project outwardly in a major surface direction beyond peripheral edges of the one of the opening and the concavity (where side view in Fig. 8b shows heat dissipating film 803 extending beyond at least both peripheral side edges of cavity 210).

Claim 8:

Where the vibrating section (802) has a polygonal shape (i.e. rectangular) with edges of different lengths as viewed in a thickness direction (top view), and at least the longest edge (either length) extends along an edge of the one of the opening and the concavity (where the distance from the lengthwise edge of the vibrating section to the edge of the concavity is broad and not defined by the claim, thus where Kaitila et al. also shows where both edges are in a parallel orientation).

Claim 9:

Where the longest edge of the vibrating section (802) has a length that is longer than a distance between the one of the opening and the concavity and a point of the vibrating section that is most distant from the edge of the one opening and the concavity (where Kaitila et al. shows a rectangular vibrating section 802 where the length of the vibrating section would be longer than any edge of the vibrating section with respect to the cavity, shown in the top and planar views in Fig. 8a with respect to Fig. 8b).

Claim 22:

Where the piezoelectric thin film is composed mainly of zinc oxide or aluminum nitride (col. 2, line 11).

Claim 23:

Where the piezoelectric resonator comprises a piezoelectric filter (where any resonator comprises a resonant filter and col. 1, lines 13-15).

Claim 26:

Where the piezoelectric resonator comprises a communication device (col. 1, lines 13-33).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaitila et al. in view of Ella (U.S. Patent No. 5,910,756).

Kaitila et al. shows a piezoelectric resonator, discussed in the reasons for rejection of claims 1 and 15 above, but is silent with respect the piezoelectric resonator comprising a specific filter such as a well-known ladder or duplexer configurations.

Ella shows a similar piezoelectric resonator (such as shown in Fig. 9i) where the piezoelectric resonator comprises a ladder and duplexer configurations (abstract; col. 7, line 51; and col. 8, line 44).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the piezoelectric resonator disclosed by Kaitila et al. to be used in a ladder and duplexer configurations disclosed by Ella. Such a modification would have realized the advantageous benefit of providing a steeply sloped passband edges providing improved frequency responses (Ella – col. 7, lines 61-65); where the duplexer provides a practical application to provide transmit and receive filters in mobile phone applications (Ella – col. 8, lines 43-65); further where Ella is a named inventor in US '170 and of the same assignee thus suggesting the obviousness of the modification.

Response to Arguments

Applicant's arguments filed August 2, 2005 have been fully considered but they are not persuasive.

Applicant submits Kaitila et al. does not teach or suggest the newly added limitation of claim 1 where Kaitila et al. (Fig. 8a) shows a frame like layer (801) that does not extend beyond the cavity (210). Although the frame like layer (801) Fig. 8a of Kaitila et al. fails to meet the newly added limitation, the following embodiment (Fig. 8b) shows

Art Unit: 2817

where the frame like layer (803) extends beyond both edges of cavity (210). Frame layer 803 extends from the top of of the resonator element such as shown in the previous embodiment in Fig. 8a and further extends surrounding the sides and contacting lower electrode (110), thus shown extending beyond at least both edges of the cavity (210), thus claim 1 remaining anticipated by Kaitila et al.

Claims 8, 9, 22, 23 and 26 have not been amended and remain anticipated by Kaitila et al.

Claims 24 and 25 have not been amended and remain unpatentable over Kaitila et al. in view of Ella.

Allowable Subject Matter

Claims 16 – 21 and 27 – 30 are allowed.

Kaitila et al. does not teach the distance between the longest edge of the vibrating section (802) and the edge of the one of the opening and the concavity is approximately one half of a vibrating wavelength of the vibrating section where neither Kaitila et al. (US '170) nor Kaitilla et al. (US '619) teaches dimensional and/or wavelength properties of cavity 210, where properties are only directed to the frame 803.

Claims 2 – 7, and 10 – 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean O. Takaoka whose telephone number is (571) 272-1772. The examiner can normally be reached on 8:30a - 5:00p Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



dot
August 11, 2005